

**Focus Report**  
**New Chemicals Program**  
PMN Number: **L-14-0273**

Focus Date: 04/30/2014 11:00:00 PM Report Status: Completed  
Consolidated Set:  
Focus Chair: Jeff Bauer Contractor: Olga Svetlitskaya

**I. Notice Information**

Submitter: Resman USA CAS Number: [REDACTED]  
Chemical Name: [REDACTED]  
Use: Chemical tracer for production monitoring in onshore and offshore oil and gas wells. Associated cases: [REDACTED]. P2REC: CRSS: forward. P2 Claim: The LVE material is a chemical tracer for oil and gas wells that offers a low environmental impact compared to alternatives (radioactive and high volumes of chemicals, and perfluorinated chemicals). [REDACTED]  
Other Uses: [REDACTED]  
PV-Max: 10,000 Kg/yr Binding Option: No  
Manufacture: Import: X

**II. SAT Results**

(1) **Health Rating:** 1-2 **Eco Rating:** 1 **Comments:** ;  
**Occupational:** 1B **Non-Occupational:** 1 **Environmental:** 1  
(1) **PBT:** 3 1 **Comments:**  
Awaiting Human Health Entry  
Awaiting Human Health Entry  
Awaiting Human Health Entry

**III. OTHER FACTORS**

**Categories:**

Health Chemical Category: Ecotox SAR and esters-acids; Esters  
TSCA New Chemical Category:

**Related Cases/Regulatory History:**

Health related Cases: [REDACTED]  
Ecotox Related Cases: Analog: [REDACTED]  
Regulatory History: [REDACTED] - WITHDRAWN/FACE 5E  
CRSS P2Rec: P2Rec-P2 Recognition

**MSDS/Label Information:**

MSDS: Yes Label: No  
General Equipment: gloves (selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it) / Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU). / Impervious clothing.  
Respirator: For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEKP2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).  
Health Effects: Inhalation of dust from the break down products may however cause| headaches or respiratory

TLV/PEL (PMN or raw material):  
LVEPPE:

irritation. Prolonged or repeated exposure can irritate eyes and skin. /// Harmful if swallowed.  
May be harmful if absorbed through skin or inhaled.  
- none established.

Solid form, PPE: gloves, eye protection

#### Exposure Based Information:

Exposure Based Review: N  
Exposure Based Review (Eco): N  
Exposure Based Review (Non Occupational):

Exposure Based Review (Health): N  
Exposure Based (Occupational): No  
Exposure Based (Environmental):

### IV. Summary of SAT Assessment

#### Fate:

**Fate Summary:** L-14-0273  
FATE:   
Solid  
S > 10 g/L at 25 °C (E)  
VP < 1.0E-6 torr at 25 C (E)  
BP > 400 C (E)  
H < 1.00E-8 (E)  
POTW removal (%) = 0; OECD 306(Closed Btl, Seawater): 11%/28d.  
Time for complete ultimate aerobic biodeg > mo  
Sorption to soils/sediments = low  
PBT Potential: P3B1  
\*CEB FATE: Migration to ground water = rapid

#### Health:

**Health Summary:** Absorption is poor all routes based on physical/chemical properties. There is concern for irritation to the eye, skin, and mucous membranes based on information in the LVE MSDS.

#### Ecotox:

**Ecotox Values:**

Fish 96-h LC50:	>100(P)	>10000(M)
Daphnid 48-h LC50:	>100(P)	>10000(M)
Green algal 96-h EC50:	>100(P)	>10000(M)
Fish Chronic Value:	>10(P)	
Daphnid ChV:	>10(P)	
Algal ChV:	>10(P)	7483(M)

**Ecotox values comments:** Predictions are based on SARs for esters-acids; SAR chemical class = esters-acids;   
; log Kow = -3.0 (EPI; n=8); solid with unknown mp (P); S = 323,000 mg/L at 20 C, pH 7 (P); pH7; effective concentrations based on 100% active ingredients and nominal concentrations; DW hardness <150.0 mg/L as CaCO3; and DW TOC <2.0 mg/L;

Ecotoxicity Test Data Results for L-14-0273:

Data submitted with L-14-0272

Trade Name: RGTW-008] were for saltwater species that included the marine invertebrates Acartia tonsa and Mysidia bahia, the sediment dwelling invertebrate Corophium volutater, the marine diatom Skeletonema costatum, and the marine fish Cyprinodon variegatus (Sheepshead minnow) and Menidia beryllina (Inland silverside). The PMN substance was classified as an with a high water solubility (>100 mg/L).

Fish Ecotoxicity Test:

(1) Opus Plus Limited conducted a 96-hour limit test in the sheepshead minnow (Cyprinodon

variegatus) with L-14-0273 (purity not specified) under static-renewal conditions with renewal after 48 hours. This study was reported to follow OECD test guideline No. 203, as adapted by OSPAR Commission 2006 Part B for marine testing of offshore chemicals. Following preliminary studies, single replicates of ten *C. variegatus* were exposed to a dilution water control (filtered sterilized seawater) or the test substance at a nominal concentration of 10000 mg/L. To prepare the test solution, an appropriate amount of test substance was weighed and directly added to seawater. The preparations were mixed in situ to ensure thorough dissolution before introduction of the test organisms. The pH was adjusted to 6-9 and gentle aeration was supplied to all tanks. During the study, temperature ranged from 18.6-20.3°C, pH ranged from 7.91-8.12, dissolved oxygen ranged from 89-99% and salinity ranged from 36-44‰. No mortalities were observed. Based on nominal concentrations, the 96-hour LC50 is > 10000 mg/L. Concerns with the study include no clear reporting of the test substance composition; however, the study corresponds to predicted effect levels and follows a standardized guideline and, thus, the fish endpoint is acceptably characterized.

96-hour LC50 > 10000 mg/L

(2) Environmental Enterprises USA, Inc. conducted a 7-day toxicity study in the inland silverside (*Menidia beryllina*) with L-14-0273 (purity not specified) under static-renewal conditions with daily renewal. This study was reported to follow the requirements of EPA-821-R-02-014: Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms with strict adherence to the requirements of Method 1006 and/or the Western Gulf of Mexico OCS General Permit. Five replicates of eight *M. beryllina* were exposed to a dilution water control (synthetic seawater) or the test substance at nominal concentrations of 0.2, 1, 5, 25 and 125 parts per trillion (ppt). A stock solution of 0.5 g of test substance per 100 mL of dilution water was prepared. An aliquot of this stock solution was diluted with synthetic seawater until a 1250 ppt stock solution was obtained. This stock solution was then used daily to prepare the test concentrations. During the study, temperature was maintained at  $25 \pm 1^\circ\text{C}$ . The salinity of the dilution water (synthetic seawater) was 25 parts per thousand. There were no significant effects on survival or growth. Based on nominal concentrations, the 7-day NOEC and LOEC values were 125 and > 125 ppt, respectively, for both survival and growth. This study was considered unacceptable to characterize the chronic fish endpoint since the highest test concentration was greatly below the limit of solubility and 10 mg/L and did not result in an effects determination. In addition the duration was too short.

7-day NOEC (survival and growth) = 125 ppt (0.000125 mg/L)

7-day LOEC (survival and growth) > 125 ppt (0.000125 mg/L)

#### Invertebrate Ecotoxicity Test:

(1) Opus Plus Limited conducted a 10-day sediment bioassay in marine amphipods (*Corophium volutator*) with L-14-0273 (purity not specified). Test methods were conducted in accordance with SOP 102, which conforms to the Paris Commission guidelines for conducting sediment toxicity tests with the amphipod *Corophium volutator* (OSPARCOM 2006). Following a preliminary solubility assessment, three replicates of twenty *C. volutator* were exposed to the test substance at nominal wet weight concentrations of 10, 100, 320, 1000 and 10000 mg/kg. Corresponding nominal dry weight concentrations of 14.08, 141.28, 449.24, 1405.80 and 14032.34 mg/kg were calculated using a wet-to-dry sediment ratio of 1.40. Additionally, five control replicates were tested concurrently. Tests were conducted in 1 L capacity glass beakers each containing 2 cm depth (approximately 150 mL) of amended sediment and 850 mL of overlying seawater (1 µm filtered ultra violet treated seawater). To prepare the test medium, an appropriate amount of test substance was dissolved in a small quantity of seawater and added directly to the mixing container containing wet sediment. The mixing vessels were then placed on a platform shaker at approximately 150 rpm for 3 hours. After this period, the contents of each container were equally distributed between the replicate vessels. Vessels were covered with a sheet of Perspex perforated with a small hole above the center of each beaker. Aeration was provided and a stream of air bubbles was released at a depth of approximately 6 cm. Over the course of the study, temperature ranged from 15.1-16.0°C, pH ranged from 7.84-8.21, dissolved oxygen ranged from 91-97% and salinity ranged from 36-42 parts per thousand. Mean percent mortality at 0 (control), 14.08, 141.28, 449.24, 1405.80 and 14032.34 mg/kg was 12%, 27%, 22%, 27%, 23% and 17%, respectively. Based on nominal concentrations, the 10-day LC50 was > 14032 mg/kg dry weight. The NOEC and LOEC values were 14032 and > 14032 mg/kg dry weight, respectively.

10-day LC50 > 14032 mg/kg dry weight

10-day NOEC = 14032 mg/kg dry weight

10-day LOEC > 14032 mg/kg dry weight

(2) Opus Plus Limited conducted a 48-hour toxicity study in marine copepods (*Acartia tonsa*) with L-14-0273 (purity not specified). This study was reported to follow ISO guideline No. 14669 (1999), Water Quality – Determination of acute lethal toxicity to marine copepods and ISO guideline No. 5667-16 (1998), Water Quality Sampling – Guidance on biotesting of samples. Following a range-finding study, two replicates of ten *A. tonsa* were exposed to the test substance at nominal concentrations of 100, 320, 1000, 3200 and 10000 mg/L. Additionally, eight replicates of ten *A. tonsa* were exposed to a dilution water control (sterilized filtered seawater). To prepare the stock solution, an appropriate amount of test substance was weighed and added to seawater. Aliquots of the stock solution were then diluted to prepare the subsequent test concentrations. The seawater was UV sterilized and filtered to 0.2  $\mu$ m. Test vessels were covered with soda glass watch covers. During the study, temperature ranged from 19.7-20.8°C and dissolved oxygen ranged from 90-99%. At the start of the study, the pH ranged from 8.12-8.37. The salinity of the dilution water was  $36 \pm 4$ ‰. A loading rate of 200 copepods/L was calculated. Mean percent mortality at 0 (control), 100, 320, 1000, 3200 and 10000 mg/L was 10%, 12%, 19%, 32%, 25% and 41%, respectively. Based on nominal concentrations, the 48-hour LC50 was > 10000 mg/L. Concerns with the study include no clear reporting of the test substance composition; however, the study corresponds to predicted effect levels and follows a standardized guideline and, thus, the fish endpoint is acceptably characterized.

48-hour LC50 > 10000 mg/L

(3) Environmental Enterprises USA, Inc. conducted a 7-day toxicity study in mysids (*Mysidopsis bahia*) with L-14-0273 (purity not specified) under static-renewal conditions with daily renewal. This study was reported to follow the requirements of EPA-821-R-02-014: Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms with strict adherence to the requirements of Method 1007 and/or the Western Gulf of Mexico OCS General Permit. Five replicates of five *M. bahia* were exposed to the test substance at nominal concentrations of 0.2, 1, 5, 25 and 125 parts per trillion (ppt). Additionally, eight replicates of five *M. bahia* were exposed to dilution water control (synthetic seawater). A stock solution of 0.5 g of test substance per 100 mL of dilution water was prepared. An aliquot of this stock solution was diluted with synthetic seawater until a 1250 ppt stock solution was obtained. This stock solution was then used daily to prepare the test concentrations. During the study, temperature was maintained at  $26 \pm 1$ °C. The salinity of the dilution water (synthetic seawater) was 25 parts per thousand. A loading rate of 33 *M. bahia*/L was calculated. There were no significant effects on survival or growth. Based on nominal concentrations, the 7-day NOEC and LOEC values were 125 and > 125 ppt, respectively, for both survival and growth. This study was considered unacceptable to characterize the chronic invertebrate endpoint since the highest test concentration was greatly below the limit of solubility and 10 mg/L and did not result in an effects determination. In addition the duration was too short.

7-day NOEC (survival and growth) = 125 ppt

7-day LOEC (survival and growth) > 125 ppt

#### Algal Ecotoxicity Test:

Opus conducted a 72-hour algal growth inhibition toxicity test in marine algae (*Skeletonema costatum*) with L-14-0273 (purity not specified) under static conditions. This study was reported to follow SOP 104, ISO guideline No. 10253 (2006), Water quality – Marine algal growth inhibition test and ISO guideline No. 5667-16 (2006) Water quality sampling – guidance on biotesting of samples. Following a range-finding study, three replicates of *S. costatum* (10,000 cells/mL) were exposed to the test substance at nominal concentrations of 1000, 1800, 3200, 5600 and 10000 mg/L. Additionally, six replicates of *S. costatum* (10,000 cells/mL) were exposed to a control (culture medium prepared with enriched natural seawater). The algae were illuminated with a light intensity ranging from 6210-8980 lux with constant shaking. To prepare the stock solution, an appropriate amount of test substance was weighed and added directly to culture medium. Aliquots of the stock solution were then diluted to prepare the subsequent test concentrations. The seawater was UV sterilized and filtered to 0.2  $\mu$ m. During the study, temperature ranged from 19.9-21.7°C and pH ranged from 7.94-9.0. Salinity of the dilution medium was  $36 \pm 4$ ‰. Based on nominal concentrations, the 72-hour EC50 for growth rate was > 10000 mg/L. The 72-hour NOEC and LOEC values were 5600 and 10000 mg/L, respectively, and a ChV of 7483 mg/L was calculated. Concerns with the study include no clear reporting of the test

substance composition; however, the study corresponds to predicted effect levels and follows a standardized guideline and, thus, the algae endpoint is acceptably characterized.

72-hour EC50 > 10000 mg/L  
72-hour NOEC = 5600 mg/L  
72-hour LOEC = 10000 mg/L  
72-hour ChV = 7483 mg/L

Both acute and chronic duration studies were provided; however, those chronic studies did not test to a high enough concentration to result in an effects determination and did not test to a sufficient duration. Even though concerns with study methodology were reported for the acute studies, submitted acute studies were considered supporting of a low hazard call and more representative of the PMN's potential hazard due to reported uses. Predictive techniques were used to estimate chronic hazard levels. Results suggest low hazard concerns with an acute CoC of 20 mg/L (20,000 ppb) and a chronic CoC of 1 mg/L (1000 ppb) that were based on acute and chronic effect levels of >100 mg/L and > 10 mg/L.

Acute CoC: 20 mg/L (20,000 ppb)  
Chronic CoC: 1 mg/L (1000 ppb)

Reviewer: K.Moran

**Ecotox Factors:**

Assessment Factor:	10
Concern Concentration:	
- Acute Value	
Concern Concentration:	1000
- Chronic Value	

## **V. Summary of Exposures/Releases**

Engineering Summary: L-14-0273

<b>Exposures/Releases</b>	<b>Release</b>	<b>Release</b>	<b>Exposure</b>
<b>Scenario</b>	<b>Use: Tracer Chemical in Oil and Gas Wells</b>	<b>Use: Tracer Chemical in Oil and Gas Wells</b>	<b>Use: Tracer Chemical in Oil and Gas Wells</b>
<b>Sites</b>	<b>9</b>	<b>9</b>	<b>9</b>
<b>Media</b>	<b>Water</b>	<b>Water or Landfill</b>	<b>Dermal</b>
Descriptor A	Output 2	Output 2	High End
Quantity A (kg/site/day)	1.4E+0	1.4E-3	2.9E+0
Frequency A (day/year)	350	350	250
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	Release to Water from Separation Process	Equipment and Storage Tank Cleaning	Equipment and Storage Tank Cleaning
Workers			
Exposure Type			Liquid

## **VI. Focus Decision and Rationale**

### **Regulatory Actions**

Regulatory Decision: LVE Grant

Decision Date: 04/30/2014

Type of Decision:

Rationale:

L-14-0272-273 was granted. Human health hazard concerns were low-moderate for dermal and inhalation exposures. Potential risks to workers were mitigated by negligible inhalation exposures and appropriate dermal PPE. The engineer recommended amending the MSDS to include U.S. standards and a NIOSH-certified respirator, however due to negligible inhalation exposures the changes were not required. Ecotoxicity hazard concerns were low based on accepted acute test data. Potential risks to the environment were low due to no exceedances of the COC during the release period. This LVE was not bound at 200 kg/yr and was assessed at 10,000 kg/yr. The P2REC was forwarded.

COC: Chronic – 1,000 ppb, Acute – 20,000 ppb

Summary of Exposures and Releases

Proc

9 sites, 250 days/yr, 0 workers

Inhalation: Not expected

Dermal: Non-quantifiable

Use

9 sites, 350 days/yr, 72 workers

Inhalation: Negligible (VP < 0.001 torr)

Dermal: 2.9E+0 mg/day (Liquid 0.26%)

Releases to Water: 1.4E+0 kg/site-day over 350 days/yr

Releases to Water: 1.4E-3 kg/site-day over 350 days/yr

Or Landfill

Fate Releases to Water (0% Removal)

SWC: 0.18 ppb

DW: LADD: 2.64E-07 mg/kg/day, ADR: 8.80E-06 mg/kg/day

P2 Rec Comments:

### **Testing:**

### **Final Recommended:**

Health:

Eco:

Fate:

Other:

## SAT Report

PMN Number: L-14-0273

SAT Date: 4/18/2014

Print Date: 12/4/2015

### Related cases:

Health related cases: [REDACTED]

Ecotox related cases: Analog: [REDACTED]

### Concern levels:

Type of Concern:	<u>Health</u>	<u>Eco</u>	<u>Comments</u>
Level of Concern:	1-2	1	

<u>Persistence</u>	<u>Bioaccum</u>	<u>Toxicity</u>	<u>Comments</u>
3	1	1	
		Awaiting	
		Human Health	
		Entry	
		Awaiting	
		Human Health	
		Entry	
		Awaiting	
		Human Health	
		Entry	

### Exposure Based Review:

Health: No

Ecotox: No

### Routes of exposure:

Health: Dermal Drinking Water Inhalation

Ecotox: No releases to water

Fate: ;

### Keywords:

Keywords:

### Summary of Assessment:

#### Fate:

Fate Summary: L-14-0273

FATE: [REDACTED]

Solid

S > 10 g/L at 25 °C (E)

VP < 1.0E-6 torr at 25 C (E)



BP > 400 C (E)

H < 1.00E-8 (E)

POTW removal (%) = 0; OECD 306(Closed Btl, Seawater): 11%/28d.

Time for complete ultimate aerobic biodeg > mo

Sorption to soils/sediments = low

PBT Potential: P3B1

\*CEB FATE: Migration to ground water = rapid

### **Health:**

**Health Summary:** Absorption is poor all routes based on physical/chemical properties. There is concern for irritation to the eye, skin, and mucous membranes based on information in the LVE MSDS.

### **Ecotox:**

Test Organism	Test Type	Test End Point	Predicted	Measured	Comments
fish	96-h	LC50	>100	>10000	
daphnid	48-h	LC50	>100	>10000	
green algal	96-h	EC50	>100	>10000	
fish	—	chronic value	>10		
daphnid	—	chronic value	>10		
algal	—	chronic value	>10	7483	
Sewage Sludge	3-h	EC50	—		
Sewage Sludge	—	Chronic Value	—		

**Ecotox Values Comments:** Predictions are based on SARs for esters-acids; SAR chemical class = esters-acids; [REDACTED] log Kow = -3.0 (EPI; [REDACTED] solid with unknown mp (P); S = 323,000 mg/L at 20 C, pH 7 (P); pH7; effective concentrations based on 100% active ingredients and nominal concentrations; DW hardness <150.0 mg/L as CaCO3; and DW TOC <2.0 mg/L;

Ecotoxicity Test Data Results for L-14-0273: [REDACTED]

Data submitted with L-14-0272 [REDACTED]

Trade Name: RGTW-008] were for saltwater species that included the marine invertebrates *Acartia tonsa* and *Mysidia bahia*, the sediment dwelling invertebrate *Corophium volutater*, the

marine diatom *Skeletonema costatum*, and the marine fish *Cyprinodon variegatus* (Sheepshead minnow) and *Menidia beryllina* (Inland silverside). The PMN substance was classified as an Ester-Acid with a high water solubility (>100 mg/L).

#### Fish Ecotoxicity Test:

(1) Opus Plus Limited conducted a 96-hour limit test in the sheepshead minnow (*Cyprinodon variegatus*) with L-14-0273 (purity not specified) under static-renewal conditions with renewal after 48 hours. This study was reported to follow OECD test guideline No. 203, as adapted by OSPAR Commission 2006 Part B for marine testing of offshore chemicals. Following preliminary studies, single replicates of ten *C. variegatus* were exposed to a dilution water control (filtered sterilized seawater) or the test substance at a nominal concentration of 10000 mg/L. To prepare the test solution, an appropriate amount of test substance was weighed and directly added to seawater. The preparations were mixed in situ to ensure thorough dissolution before introduction of the test organisms. The pH was adjusted to 6-9 and gentle aeration was supplied to all tanks. During the study, temperature ranged from 18.6-20.3°C, pH ranged from 7.91-8.12, dissolved oxygen ranged from 89-99% and salinity ranged from 36-44‰. No mortalities were observed. Based on nominal concentrations, the 96-hour LC50 is > 10000 mg/L. Concerns with the study include no clear reporting of the test substance composition; however, the study corresponds to predicted effect levels and follows a standardized guideline and, thus, the fish endpoint is acceptably characterized.

96-hour LC50 > 10000 mg/L

(2) Environmental Enterprises USA, Inc. conducted a 7-day toxicity study in the inland silverside (*Menidia beryllina*) with L-14-0273 (purity not specified) under static-renewal conditions with daily renewal. This study was reported to follow the requirements of EPA-821-R-02-014: Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms with strict adherence to the requirements of Method 1006 and/or the Western Gulf of Mexico OCS General Permit. Five replicates of eight *M. beryllina* were exposed to a dilution water control (synthetic seawater) or the test substance at nominal concentrations of 0.2, 1, 5, 25 and 125 parts per trillion (ppt). A stock solution of 0.5 g of test substance per 100 mL of dilution water was prepared. An aliquot of this stock solution was diluted with synthetic seawater until a 1250 ppt stock solution was obtained. This stock solution was then used daily to prepare the test concentrations. During the study, temperature was maintained at 25 ± 1°C. The salinity of the dilution water (synthetic seawater) was 25 parts per thousand. There were no significant effects on survival or growth. Based on nominal concentrations, the 7-day NOEC and LOEC values were 125 and > 125 ppt, respectively, for both survival and growth. This study was considered unacceptable to characterize the chronic fish endpoint since the highest test concentration was greatly below the limit of solubility and 10 mg/L and did not result in an effects determination. In addition the duration was too short.

7-day NOEC (survival and growth) = 125 ppt (0.000125 mg/L)

7-day LOEC (survival and growth) > 125 ppt (0.000125 mg/L)

#### Invertebrate Ecotoxicity Test:

(1) Opus Plus Limited conducted a 10-day sediment bioassay in marine amphipods (*Corophium*

volutator) with L-14-0273 (purity not specified). Test methods were conducted in accordance with SOP 102, which conforms to the Paris Commission guidelines for conducting sediment toxicity tests with the amphipod *Corophium volutator* (OSPARCOM 2006). Following a preliminary solubility assessment, three replicates of twenty *C. volutator* were exposed to the test substance at nominal wet weight concentrations of 10, 100, 320, 1000 and 10000 mg/kg. Corresponding nominal dry weight concentrations of 14.08, 141.28, 449.24, 1405.80 and 14032.34 mg/kg were calculated using a wet-to-dry sediment ratio of 1.40. Additionally, five control replicates were tested concurrently. Tests were conducted in 1 L capacity glass beakers each containing 2 cm depth (approximately 150 mL) of amended sediment and 850 mL of overlying seawater (1 µm filtered ultra violet treated seawater). To prepare the test medium, an appropriate amount of test substance was dissolved in a small quantity of seawater and added directly to the mixing container containing wet sediment. The mixing vessels were then placed on a platform shaker at approximately 150 rpm for 3 hours. After this period, the contents of each container were equally distributed between the replicate vessels. Vessels were covered with a sheet of Perspex perforated with a small hole above the center of each beaker. Aeration was provided and a stream of air bubbles was released at a depth of approximately 6 cm. Over the course of the study, temperature ranged from 15.1-16.0°C, pH ranged from 7.84-8.21, dissolved oxygen ranged from 91-97% and salinity ranged from 36-42 parts per thousand. Mean percent mortality at 0 (control), 14.08, 141.28, 449.24, 1405.80 and 14032.34 mg/kg was 12%, 27%, 22%, 27%, 23% and 17%, respectively. Based on nominal concentrations, the 10-day LC50 was > 14032 mg/kg dry weight. The NOEC and LOEC values were 14032 and > 14032 mg/kg dry weight, respectively.

10-day LC50 > 14032 mg/kg dry weight

10-day NOEC = 14032 mg/kg dry weight

10-day LOEC > 14032 mg/kg dry weight

(2) Opus Plus Limited conducted a 48-hour toxicity study in marine copepods (*Acartia tonsa*) with L-14-0273 (purity not specified). This study was reported to follow ISO guideline No. 14669 (1999), Water Quality – Determination of acute lethal toxicity to marine copepods and ISO guideline No. 5667-16 (1998), Water Quality Sampling – Guidance on biotesting of samples. Following a range-finding study, two replicates of ten *A. tonsa* were exposed to the test substance at nominal concentrations of 100, 320, 1000, 3200 and 10000 mg/L. Additionally, eight replicates of ten *A. tonsa* were exposed to a dilution water control (sterilized filtered seawater). To prepare the stock solution, an appropriate amount of test substance was weighed and added to seawater. Aliquots of the stock solution were then diluted to prepare the subsequent test concentrations. The seawater was UV sterilized and filtered to 0.2 µm. Test vessels were covered with soda glass watch covers. During the study, temperature ranged from 19.7-20.8°C and dissolved oxygen ranged from 90-99%. At the start of the study, the pH ranged from 8.12-8.37. The salinity of the dilution water was 36 ± 4‰. A loading rate of 200 copepods/L was calculated. Mean percent mortality at 0 (control), 100, 320, 1000, 3200 and 10000 mg/L was 10%, 12%, 19%, 32%, 25% and 41%, respectively. Based on nominal concentrations, the 48-hour LC50 was > 10000 mg/L. Concerns with the study include no clear reporting of the test substance composition; however, the study corresponds to predicted effect levels and follows a standardized guideline and, thus, the fish endpoint is acceptably characterized.

48-hour LC50 > 10000 mg/L

(3) Environmental Enterprises USA, Inc. conducted a 7-day toxicity study in mysids (*Mysidopsis bahia*) with L-14-0273 (purity not specified) under static-renewal conditions with daily renewal. This study was reported to follow the requirements of EPA-821-R-02-014: Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms with strict adherence to the requirements of Method 1007 and/or the Western Gulf of Mexico OCS General Permit. Five replicates of five *M. bahia* were exposed to the test substance at nominal concentrations of 0.2, 1, 5, 25 and 125 parts per trillion (ppt). Additionally, eight replicates of five *M. bahia* were exposed to dilution water control (synthetic seawater). A stock solution of 0.5 g of test substance per 100 mL of dilution water was prepared. An aliquot of this stock solution was diluted with synthetic seawater until a 1250 ppt stock solution was obtained. This stock solution was then used daily to prepare the test concentrations. During the study, temperature was maintained at  $26 \pm 1^\circ\text{C}$ . The salinity of the dilution water (synthetic seawater) was 25 parts per thousand. A loading rate of 33 *M. bahia*/L was calculated. There were no significant effects on survival or growth. Based on nominal concentrations, the 7-day NOEC and LOEC values were 125 and  $> 125$  ppt, respectively, for both survival and growth. This study was considered unacceptable to characterize the chronic invertebrate endpoint since the highest test concentration was greatly below the limit of solubility and 10 mg/L and did not result in an effects determination. In addition the duration was too short.

7-day NOEC (survival and growth) = 125 ppt  
7-day LOEC (survival and growth)  $> 125$  ppt

#### Algal Ecotoxicity Test:

Opus conducted a 72-hour algal growth inhibition toxicity test in marine algae (*Skeletonema costatum*) with L-14-0273 (purity not specified) under static conditions. This study was reported to follow SOP 104, ISO guideline No. 10253 (2006), Water quality – Marine algal growth inhibition test and ISO guideline No. 5667-16 (2006) Water quality sampling – guidance on biotesting of samples. Following a range-finding study, three replicates of *S. costatum* (10,000 cells/mL) were exposed to the test substance at nominal concentrations of 1000, 1800, 3200, 5600 and 10000 mg/L. Additionally, six replicates of *S. costatum* (10,000 cells/mL) were exposed to a control (culture medium prepared with enriched natural seawater). The algae were illuminated with a light intensity ranging from 6210-8980 lux with constant shaking. To prepare the stock solution, an appropriate amount of test substance was weighed and added directly to culture medium. Aliquots of the stock solution were then diluted to prepare the subsequent test concentrations. The seawater was UV sterilized and filtered to 0.2  $\mu\text{m}$ . During the study, temperature ranged from 19.9-21.7°C and pH ranged from 7.94-9.0. Salinity of the dilution medium was  $36 \pm 4\text{‰}$ . Based on nominal concentrations, the 72-hour EC50 for growth rate was  $> 10000$  mg/L. The 72-hour NOEC and LOEC values were 5600 and 10000 mg/L, respectively, and a ChV of 7483 mg/L was calculated. Concerns with the study include no clear reporting of the test substance composition; however, the study corresponds to predicted effect levels and follows a standardized guideline and, thus, the algae endpoint is acceptably characterized.

72-hour EC50  $> 10000$  mg/L  
72-hour NOEC = 5600 mg/L  
72-hour LOEC = 10000 mg/L

72-hour ChV = 7483 mg/L

Both acute and chronic duration studies were provided; however, those chronic studies did not test to a high enough concentration to result in an effects determination and did not test to a sufficient duration. Even though concerns with study methodology were reported for the acute studies, submitted acute studies were considered supporting of a low hazard call and more representative of the PMN's potential hazard due to reported uses. Predictive techniques were used to estimate chronic hazard levels. Results suggest low hazard concerns with an acute CoC of 20 mg/L (20,000 ppb) and a chronic CoC of 1 mg/L (1000 ppb) that were based on acute and chronic effect levels of >100 mg/L and > 10 mg/L.

Acute CoC: 20 mg/L (20,000 ppb)

Chronic CoC: 1 mg/L (1000 ppb)

Reviewer: K.Moran

Factors	Values	Comments
Assessment Factor	10	
Concentration of Concern (ppb) Acute		
Concentration of Concern (ppb) Chronic	1000	
SARs	esters-acids	
SAR Class	esters-acids	
TSCA New Chemical Category	Esters	

**Ecotox Factors Comments:**

**SAT Chair:** Viktor Morozov

**Fate assessor:** **Ecotox assessor:** **Health assessor:**